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Faith-Based Approach: Reaching the Rural Population to Increase Diabetes Awareness

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Faith-Based Approach: Reaching the Rural Population to Increase Diabetes Awareness

Abstract

With diabetes at an epidemic level in the United States, more awareness needs to be brought surrounding prediabetes and diabetes prevention. This DNP Project consists of implementing a faith-based educational informational event at a local rural church to increase diabetes awareness. Findings within this DNP project suggest that the rural population can increase knowledge of diabetes awareness through faith-based education. With a sample size of 21 participants, positive statistical significance was found on analysis of pre-test and post-test Likert style questions regarding diabetes prevention, risk factors, and diabetic resources.

Key Words: faith-based, rural population, diabetes awareness, diabetes education

DNP Project Step 1 – Problem Recognition

Prevalence of diabetes in the United States is at an epidemic level. Specifically, in the state of North Carolina it is estimated that 887,000 people have been diagnosed with diabetes, 244,000 people may have diabetes but are unaware and another 2,765,000 people have prediabetes (American Diabetes Association [ADA], 2020). In the rural area of Cleveland County, there is a 14.6% prevalence rate of people with diabetes (County Health Rankings & Roadmaps, 2021). Cleveland County, North Carolina covers 465 square miles with the county seat of Shelby being centrally located (Cleveland County Public Health Center, 2020). The majority of healthcare resources are located in Shelby and specialty healthcare may require traveling to Gastonia, Charlotte or even Asheville (Cleveland County Public Health Center, 2020). Outlying towns such as Casar, Fallston, Polkville, Lawndale, and Belwood are in the northern part of the county and are more than 20 miles driving distance from the county seat. The socioeconomic status and transportation access are also limited in the rural northern or “upper Cleveland” area (Cleveland County Public Health Center, 2020). Another access limitation in this region is reliable telecommunications, specifically high-speed internet access (Kramer, 2021).

The increased prevalence and awareness of diabetes have resulted in increased targeted resources and assistance on a national level, but in rural regions, such as Cleveland County, North Carolina, there are very few diabetic resources available. In-person resources that are currently available to Cleveland County residents, such as the Diabetes Center in Shelby NC, require a referral from a health care provider and may still involve traveling approximately one hour for some people in the outer regions of the county. Other diabetic resources are available online, however, many citizens of Cleveland County lack reliable internet capabilities.

The Centers for Disease Control and Prevention established a National Diabetes Prevention Program, which is an evidenced-based program aimed to help people prevent or delay type 2 diabetes. This program has shown that people with prediabetes who follow this lifestyle change program can reduce the risk of developing type 2 diabetes by 58 percent (Centers for Disease Control and Prevention [CDC], 2018). Utilization of the program is less than 5% for people who have Medicare and 6.8% for people with private insurance (Centers for Disease Control and Prevention [CDC], 2018). A search of the CDC website reveals the closest location to access this program, and Cleveland County does not have one listed at all, while most neighboring counties have at least one program location.

Diabetes is not often a stand-alone disease process, and it is often identified in patients with multiple co-morbidities. Diabetes and co-morbidities have the potential to lead to other serious complications, such as heart disease, stroke, blindness, kidney failure, amputation, and even early death. Diabetes is the seventh leading cause of death in Cleveland County and the fourth leading cause of death in people 40 to 64 years of age (Cleveland County Public Health Center, 2020). Care practices, such as annual foot exams, annual eye exams and attending self-management classes have been shown to help prevent complications and programs such as Diabetes Self-Management Education and Support (DSMES) have been proven to have a positive impact on diabetes outcomes (CDC, 2020). Approximately 12% of Cleveland County residents have been diagnosed with diabetes (North Carolina Institute of Medicine [NCIOM], 2020). The county is also 83.5% more vulnerable than other US counties but has very little in terms of diabetes resources available to citizens (NCIOM, 2020).

In order to prevent, delay and improve diabetic outcomes for the high risk and pre-diabetic citizens of Cleveland County, there needs to be more convenient and accessible

education and support available within the county. Community resources that involve faith-based centers, peer-lead activities, and / or community outreach programs have all shown potential to increase knowledge, well-being and medical outcomes related to diabetes.

DNP Project Step 2 – Needs Assessment

Diabetes is a topic that is widely researched and one that impacts up to 1 in 10 Americans, however, reaching the rural population to increase awareness and recognition of diabetes is a difficult task (CDC, 2022). Research has shown that programs focusing on diabetes prevention, such as the YMCA's Diabetes Prevention Program can decrease the number of people who develop type 2 diabetes by as much as 58% (YMCA, 2021). Faith-based education programs provide a means to reach rural communities to deliver education about diabetes awareness and prevention in this population.

Literature Review

According to O'Brien, et al., most patients do not understand their risk of developing diabetes and are unaware of treatment options (2016). Other research has found a possible disconnect between understanding the need for lifestyle changes to reduce the risk of diabetes and actually participating in those changes (Strodel, et al., 2019). Those living in rural areas show the largest disparity among areas with access to diabetes prevention centers (Graves, et al., 2019), and in rural areas where screening events were planned, participants were surprised at their diabetes risk results and the ease of which a HgbA1C is collected (Greenleaf & Prather, 2020). The literature related to implementing faith-based education was encouraging to this project. Research has found that implementing faith-based education in rural areas can be achieved through local churches and the information can raise awareness of diseases and create healthy environments (Rural Health Information Hub, 2020). Much of the research found was

related to minority populations within the United States. According to multiple research studies, faith-based organizations do show potential for improving health outcomes (Tristao, et al., 2018).

Target Population

Using a faith-based education model, the target population focused on a rural community church charge in the upper part of Cleveland County. The charge is made up of three churches, which often combine during events such as Easter and Christmas to form a larger congregation. The church consists mostly of people over the age of 18, which is the population age of focus. According to organizational association, the three churches combine for a total of 203 members, and the average attendance is 70 members. The intervention for this project was a faith-based diabetes awareness program intended to assess knowledge of the members prior to an educational intervention and again after the completion. In rural communities (P), how does faith-based diabetes awareness education (I), compared to no faith-based diabetes awareness education (C), affect knowledge of diabetes (O) after the program completion (T)?

Sponsors and Stakeholders

The main sponsor of this project was the church pastor and church board members, who ultimately decided to accept the project implementation. Stakeholders for the project included the church members who have potential to benefit from the project through increased diabetes awareness. Local primary care providers may also benefit from this project, as members may reach out to find a provider after becoming more aware of the possibility of diabetes. Area diabetes programs, such as the Young Men's Christian Association (YMCA), Cleveland County Health Department and the local hospital, Atrium Health's Diabetes Center may also benefit from members increase knowledge of available programs and resources.

Organizational Analysis

This project was consistent with the church's values, in that it was provided with the member's well-being in mind and strived to benefit the members health through compassion and education. The church had many strengths to contribute to this project, such as the members' interest in improving the well-being of others, and a generalized interest in helping others in the community. The members have demonstrated this through multiple fundraisers to help with medical expenses for community members and participation at the Kidney Association. Although, weaknesses lie within the limited number of active church members and the small area of impact.

Opportunities include improved health of the participating members, improved recognition of signs and symptoms of diabetes, and increased information regarding local Primary Care Providers (PCPs) and/or diabetes prevention programs. Other opportunities were a chance for improved member relationships through fellowship during the project and providing a needed community service. There is also an opportunity for other churches to implement a similar process.

There were threats to this project, which were possible rejection of the intervention from the church members or the greater church association. Diabetes education through other access points, such as employers, may have decreased interest in the project. There were possibly members that are reluctant to participate or those who did not recognize the need for such a program. Through the recognition of these threats, efforts were made to dismantle them with the help of the team members from the church. See SWOT analysis, Appendix A.

Available Resources

The church had multiple resources available, with the members being the most valuable resources. Those members willing to help introduce the project and those members willing to

participate in the project were all of great value to this project. There was also available space in the fellowship hall, which allowed for ample room to provide education. There was also a kitchen in the fellowship hall that allowed for healthy snacks to be prepared and stored for providing during the intervention. The church also provided a bulletin to its members, which was utilized to place an insert to advertise the intervention, time, and place. Other available resources included websites, such as the CDC and the American Diabetes Association which have educational resources including a diabetes risk assessment tool and handouts on diabetes facts that were used during the educational event.

Outcomes

The desired outcome for this project was to ultimately improve the health of rural communities through an increase in knowledge of diabetes awareness. The expected outcome was to increase knowledge of diabetes awareness in rural church members who attended the intervention program.

Team Selection

The project was led by the DNP Project Leader who was responsible for coordinating the intervention and analyzing the outcomes of the project. The pastor for the three congregations acted as the church lead and helped to lead the process to abide by necessary rules and regulations set forth by the church association. Other team members included two individuals from the congregation who are often responsible to organizing fundraisers and also participate in community outreach programs. These individuals helped to reach out to other members of the congregation and the project was allowed to take place at one of the churches.

Cost / Benefit Analysis

Fixed cost for this program included start-up cost of paper and printing for the bulletin inserts, posterboards, and handouts, estimated at one hundred fifty dollars. Also, the healthy snacks that were provided during the project implementation was a fixed cost estimated at one hundred dollars. The use of the fellowship hall was utilized with no rental fee. The benefit of the project was more indirect, as it relates to possible health related benefits. The typical diabetic patient spends on average, over \$16,000 per year in health care related to diabetes (American Diabetes Association, 2018).

Scope of Project

The scope of this project included the implementation of a diabetes awareness educational event at a rural church. Healthy, diabetic friendly snacks were provided to attendees. Advertisement for the event was spread through word-of-mouth and the church bulletin. Approval was gained from the church pastor and University Institutional Review Board (IRB). Participants were over the age of 18 and were provided informed consent. Participants' knowledge related to diabetes awareness was assessed prior to the beginning of the intervention and again after the completion of the intervention using a pre-test and post-test design. The church members who were part of the project team helped to administer the pre and post-test. Information about local PCP's and diabetes prevention programs was provided on a handout to each participant. Knowledge assessment was collected and analyzed by the project leader and aggregate results will be shared with the church team members.

DNP Project Step 3 – Goals, Objectives, and Mission Statement

Using a faith-based setting, the goal of this project was to educate the rural community about diabetes risk factors and prevention strategies. Evidence suggests faith-based education in a church setting is an effective method to reach individuals in rural communities (Frank &

Grubbs, 2018). The rural community identified for this DNP Project has limited access to healthcare in close proximity. The intent of the project was to educate the faith-based rural community members on diabetes risk factors and prevention strategies with a goal of reaching individuals who have not previously been diagnosed with diabetes. The intended audience for the intervention was non-diabetics, those at risk for diabetes, or those diagnosed with prediabetes. However, the entire faith-based community was invited to participate, as information shared in the educational intervention may be beneficial for those who have already been diagnosed with diabetes.

The objectives for this DNP Project were,

Upon completion of the educational intervention,

1. participants will know their individual risk factors for diabetes as listed on the Prediabetes Risk Test formulated by the American Diabetes Association and the Centers for Disease Control and Prevention.
2. participants will have increased understanding of diabetes being a preventable disease, as evidenced by increased scores on post-test in comparison to pre-test.
3. participants will have an increased awareness of community resources specific to diabetes, as evidenced by increased scores on post-test in comparison to pre-test.

The mission of this project was to provide culturally competent and easy to understand education related to diabetes awareness to the citizens of a rural community through a church setting. The project provided education in a manner that did not interfere with the normal schedule of church activities and in a manner that was respectful of the congregation. The project data collection did not include any demographic information that would identify specific members of the church and collected the information in a voluntary manner. This project was

conducted in a manner that provided education to rural community members in a non-punitive and non-judgmental fashion in an attempt to improve the health of the rural community.

DNP Project Step 4 – Theoretical Underpinnings

The DNP Project utilized Pender's Health Promotion Model as a guiding theory (Appendix B). Pender's Health Promotion model includes three main foci: individual characteristics, behavior specific cognitions and affect, and behavioral outcomes. The first two areas help mold an individual's pursuit of health and can be modified through nursing actions as health promoting behavior, which is the desired end point of Pender's Health Promotion Model (Nursing-Theory.org, 2020).

One of the key concepts in Pender's Health Promotion Model is the focus on an individual's environment. An individual's environment may include their home, work, or community. One component of the environment for many individuals is their faith-based community. The DNP Project was designed for implementation within a faith-based community. Pender postulates one's "environment is the social, cultural, and physical context in which the life course unfolds" (Pender, 2011). The faith-based community identified for project implementation was a small rural church which is central to many individuals' environmental context in this community. Pender emphasized the importance of environment, and the potential impact that health professionals being active in the environment may have. Health professionals integrated into the interpersonal environment are able to influence an individual's health behavior (Pender, 2011). The DNP Project implementation was led by a health professional student pursuing an advanced practice nursing degree. The project created an environmental opportunity to positively influence health behavior by providing diabetes education within the church environment.

In order to gain an understanding of the individual's prior knowledge of diabetes before the educational intervention was introduced, a pre-test was utilized for data collection. The pre-test established baseline knowledge and aligned with Pender's Health Promotion Model concept of reflective self-awareness. A person's reflective self-awareness, or their perceived competence, is a behavior specific cognition that affects their ability to perform health behaviors successfully (Pender, 2011). By collecting pre-test data, the participants baseline awareness of diabetes was established. After the project implementation, baseline data was compared to post-test data to help explore participants increase in knowledge and ability and willingness to participate in health-promoting behaviors suggested in the educational intervention. The post-test data explored if there were any "modified cognitions" as a result of the project. Modified cognitions are a concept that Pender utilized in the Health Promotion Model.

According to Pender's theory, a person can modify cognitions to create incentives for health promoting behaviors (Pender, 2011). The goal of the educational intervention was for participants to have a renewed sense of awareness about diabetes. As a result of the increase in perceived diabetes self-efficacy there is potential for increased health promoting behaviors (Pender, 2011).

Pender's Health Promotion Model defines "health as a positive dynamic state rather than simply the absence of disease" (Nursing-Theory.org, 2020). The implementation of the DNP Project was designed to educate on both the effects of living with diabetes and prevention of diabetes. The project's intent aligned with Pender's definition of health. The DNP Project leader's transition from Registered Nurse to Nurse Practitioner was founded in a desire to focus on health promotion. The opportunity to lead a project in a community-based setting allowed the

project leader to better understand the concepts of health promotion, as outlined by Pender in her model.

DNP Project Step 5 – Work Planning

See Appendix C for the work breakdown structure, which includes steps taken for the intervention preparation, intervention, and post-intervention. Steps were further categorized into a Gantt Chart, see Appendix D. And finally, an estimated budget was established for the DNP project reflected in Appendix E.

DNP Project Step 6 – Planning for Evaluation

The DNP Project was designed to improve knowledge and awareness of diabetes. Participants received education on diabetes, diabetes prevention, and diabetic community resources available. Baseline knowledge was assessed prior to the intervention. Following the intervention, impact was assessed with a post-test survey. The evaluation plan for the DNP Project was designed using a logic model (Appendix F). The logic model was used to ensure outcomes reflected the objectives of the project.

The project objectives were:

Upon completion of the educational intervention participants will:

1. Know their individual risk factors for diabetes as listed on the Prediabetes Risk Test formulated by the American Diabetes Association and the Centers for Disease Control and Prevention.
2. Have increased understanding of diabetes being a preventable disease, as evidenced by increased scores on post-test in comparison to pre-test.
3. Have an increased awareness of community resources specific to diabetes, as evidenced by increased scores on post-test in comparison to pre-test.

In designing the logic model process, inputs were first assessed to include personnel, physical space, supplies, time, and funding. This project had access to the church, fellowship hall, pastor, church members and time during the service to provide information regarding the project. Constraints related to the project were the time frame, access to fellowship hall, and the use of time from each contributing member. The activities performed to complete the intervention were the actual development of the tests and educational materials, the interventional event providing educational materials, the pre and post-tests completion, and discussing the project during the church service to bring awareness to the project.

The immediate outputs of the project provided the number of participants, the baselines test scores, and the post-education tests scores. The tests themselves were composed of a six-point Likert scale questionnaire, with answers from strongly disagree to strongly agree. The scores were evaluated using a paired t-test analysis. The short-term outcome was to increase positive outcome scores from pre-test to post-test and therefore increase diabetes awareness among the church members, with items specific to each objective. Long term outcomes include an increased motivation and self-confidence of church members to prevent diabetes with an overall impact of increasing the rural populations' access to health education.

DNP Project Step 7 – Implementation

The successful implementation of this DNP project was made possible through the actions and contributions of the DNP project team members and the acceptance of the DNP project from the church congregation. The DNP project team were able to identify threats and barriers to this DNP project; some of which were anticipated prior to the implementation of the DNP project and others which were not identified until the project implementation. Implementation monitoring was the responsibility of the DNP project leader. Project closure

was agreed upon by the project team and team leader after the successful completion of the DNP project implementation and collection of data.

Threats and barriers identified prior to the DNP project implementation included having a limited amount of church members, church members having previous education through other programs, and church members being reluctant to change. In an attempt to thwart the barrier of having a limited amount of church members, the educational event was advertised by the church pastor during announcements at a service convening the entire church charge of three separate congregations. The event was also announced in the church bulletin. The announcement was included in the broadcasted church service on Facebook® live. The church congregation is small and in anticipation of limited participants, varied strategies of announcing the opportunity were employed. The event educational was open to all members, regardless of previous or current education through other programs or providers. Not anticipated threats and barriers that were realized at the time of implementation included church members being on vacation, members not able to attend due to sickness or previous engagements, and church members with plans for lunch directly following church service, which was the time of the planned intervention.

The DNP project team leader maintained leadership of the team throughout the implementation of the DNP project through monitoring and providing direction to team members and participants. Monitoring of the implementation was found to be more difficult than anticipated due to participants arriving at the event at different times. The project leader led an initial group through the informed consent process, steps to complete the event, and answered questions. As other participants arrived, individual instructions were given, which prevented the team leader from being in position to answer questions for all participants completing the educational portion of the event. The team leader did resume position for answering questions as

soon as possible after providing instructions to newly arriving participants. Overall, the DNP project team leader was able to maintain leadership over the implementation of the DNP project while other team members managed their individual stations throughout the event.

Once all participants had completed the educational intervention, data had been collected, and the fellowship hall had been cleaned, the DNP project team met to debrief. The team agreed that the intervention had been completed and therefore would commence project closure. The DNP project team discussed lessons learned, including what went well with the project and what could have been executed more effectively. Members agreed that having a team member stationed at the door for participants coming in after the initial instructions could have improved project flow. It was also speculated that having church members commit to coming to the event, in some type of RSVP, may have been helpful in increasing participation numbers. More individualized discussions with church members may have also been helpful in increasing participation.

DNP project team members felt the project was an overall success and were pleased with the engagement of participants as they advanced their knowledge through the education, the ease of participation flow through the three education boards, fellowship between all participants, participant enjoyment of healthy snacks provided, and ease of access to the educational event for attending church members. All team members, church participants, and the pastor were thanked for their contributions and time given to the event by the team leader. It is anticipated that similar health related events can be held in the future following the lessons learned of this DNP project.

DNP Project Step 8 – Interpretation of Data

Results of the DNP Project implementation demonstrated an overall increase in diabetes awareness. Positive impact on the participants' knowledge of diabetes after completion of the educational intervention was identified. While not all results were statistically significant, the overall significance of results are meaningful. Future implications for similar educational events were also deemed as a positive outcome to this DNP project.

There were nine Likert scale items on the pre-test (Appendix G) and 10 Likert scale items on the post-test (Appendix H) along with an open-ended item to obtain participants' diabetes risk assessment score. Items were scored on a six-point Likert scale from "strongly disagree" to "strongly agree." Using a six-point scale assured that all answers were either of the agree or disagree spectrum and omitted a neutral response. Of the nine items on both the pre-test and the post-test; three were related to diabetes prevention, three were related to diabetes risk factors, and three were related to diabetic resources. These three categories aligned directly to the three DNP project objectives. Twenty-one (21) adult individuals participated in the event and 100% (N=21) completed both the pre-test and the post-test. No demographic data was collected. Upon completion of the project, each item was analyzed using a paired t-test with a hypothesized mean difference of zero, and $p \leq 0.05$ was set as the level of significance.

Understanding Risks for Developing Diabetes

In analysis of the DNP project objective 1: individuals will know their own risks for developing diabetes, items one through three were examined. Item #1: "Type 2 diabetes is a preventable disease." Data analysis revealed statistically significant knowledge improvement from pre to post test, with a p-value of 0.03 (Appendix I). On the pre-test, 86% (N=18) of participants selected an answer on the agree spectrum and 14% (N=3) selected an answer on the disagree spectrum. On the post-test, 95% (N=20) of participants selected an answer on the agree

spectrum and only 5% (N=1) answered on the disagree spectrum. The strongly agree category was selected for 14% (N=3) of the participants on the pre-test and increased to 57% (N=12) on the post-test. While both the pre-test and post-test agreement percentages were high, the large increase in those choosing strongly agree may indicate the participants' level of confidence in their agreement answer had improved. Item #2: "I can make lifestyle changes to prevent developing diabetes." For item two, there was no statistical significance as shown with a p-value of 0.18 (Appendix J). However, most participants agreed with this item on both the pre and post-test as reflected by 95% (N=20) agreement on pre-test and a 100% (N=21) agreement on the post-test. It would appear that most of the participants had prior knowledge that lifestyle changes can prevent developing diabetes. Item #3: "Prediabetes always turns into diabetes." For this item, a positive outcome would have been reflected by choosing in the disagree spectrum. The pre-test disagreement was 48% (N=10) and the post-test disagreement was 67% (N=14). The p-value for item three was 0.19 reflecting no statistical significance (Appendix K). The small change noted on this item post-test may indicate that this particular subject was not addressed as clearly or thoroughly as the other subjects during the educational intervention.

Increase Understanding of Diabetes as a Preventable Disease

Items four through six were examined to analyze the second DNP project objective: participants will increase understanding of diabetes being a preventable disease. Item #4: "After age 45, you are less likely to develop diabetes." Answers to this item were considered positive responses by choosing an answer on the disagree spectrum of the Likert scale. Analysis revealed no statistical significance for item four with a p-value of 0.52 (Appendix L). Pre-test disagreement total was 81% (N=17) while the post-test disagreement total was 95% (N=20), indicating participants had a good baseline knowledge related to diabetic development with

increasing age. However, it is encouraging that all but one participant chose in disagreement on the post-test. In review of the specific participant's response, it was found the individual chose in the agreement spectrum "strongly agree." This finding suggests the individual may have misinterpreted the education or may have misinterpreted of the item, because no participants chose strongly agree on the pre-test. Item #5: "Being overweight is the only risk factor to developing diabetes." The positive outcome to item five would have been reflected by a disagreement answer. The p-value for item 5 was 1.0 (Appendix M). The pre-test disagreement total was 100% (N=21) and the post-test disagreement total was 90% (N=19), reflecting a decrease in knowledge for item five. There is speculation again that this may have been due, in part, to the wording of this item. It may have been helpful to highlight the word "only" in the item, as it would be interpreted differently with the omission of this word. It is to be noted that only two of the participants answered this item in the agreement spectrum on the post-test, however none of the participants answered in agreement on the pre-test. Item #6: "I understand my own risk factors for developing diabetes." Item six showed a high level of statistical significance with a p-value of 0.00 (Appendix N). While 81% (N=17) answered on the agreement spectrum for item six on the pre-test, 100% (N=21) of participants agreed on the post-test, with 62% (N=13) of participants responding with a strongly agree answer and 38% (N=8) with agree. Item six directly correlated to the participants active completion of a risk assessment test during the educational intervention.

Increased Awareness of Community Resources Specific to Diabetes

The third DNP objective of participants having an increased awareness of community resources specific to diabetes, was addressed with items seven through nine. Item #7: "Cleveland County offers education / resources about diabetes." Analysis of item seven

demonstrated statistical significance with a p-value of 0.05 (Appendix O). Participants' agreement increased from 90% (N=19) on the pre-test to 95% (N=20) on the post-test. While participants did agree about Cleveland County having diabetic resources, many increased their confidence in this answer as reflected by the percentage of those answering "strongly agree" increasing from 0% (N=0) to 38% (N=8) on the post-test. Item #8: "I know the resources / classes that are available to me about diabetes." Analysis of item eight also revealed a high statistically significant improvement with a p-value of 0.00 (Appendix P). 71% (N=15) of participants agreed on the pre-test and that increased to 95% (N=20) on the post-test. Item #9: "I am interested in joining a class to decrease my risk of diabetes." While item nine did show a statistically significant improvement, it was very slight at 0.05 (Appendix Q). Pre-test agreement for item nine was 71% (N=15) of participants and post-test was 86% (N=18), with only 2 extra participants selecting strongly agree on post-test than on pre-test. These results may have been skewed by participants already participating in similar programs or those who have already been diagnosed with diabetes.

Item ten on the post-test indicated whether participants would be interested in future events of a similar nature. All participants answered in the agreement spectrum with 38% (N=8) strongly agreeing, 43% (N=9) agreeing, and 19% (N=4) somewhat agreeing (Appendix R). The post-test also collected the participants diabetes risk assessment score, however there were several post-tests that did not provide this data with this item being left blank. In future implementations, it may be beneficial to have a numerical scale listed where the participant can circle the corresponding number instead of leaving a blank space for the participant to write in the number. Of the diabetes risk assessment scores that were collected (N=16), the median risk score was 5, with scores ranging from 1 to 8 (Appendix S). According to the risk assessment

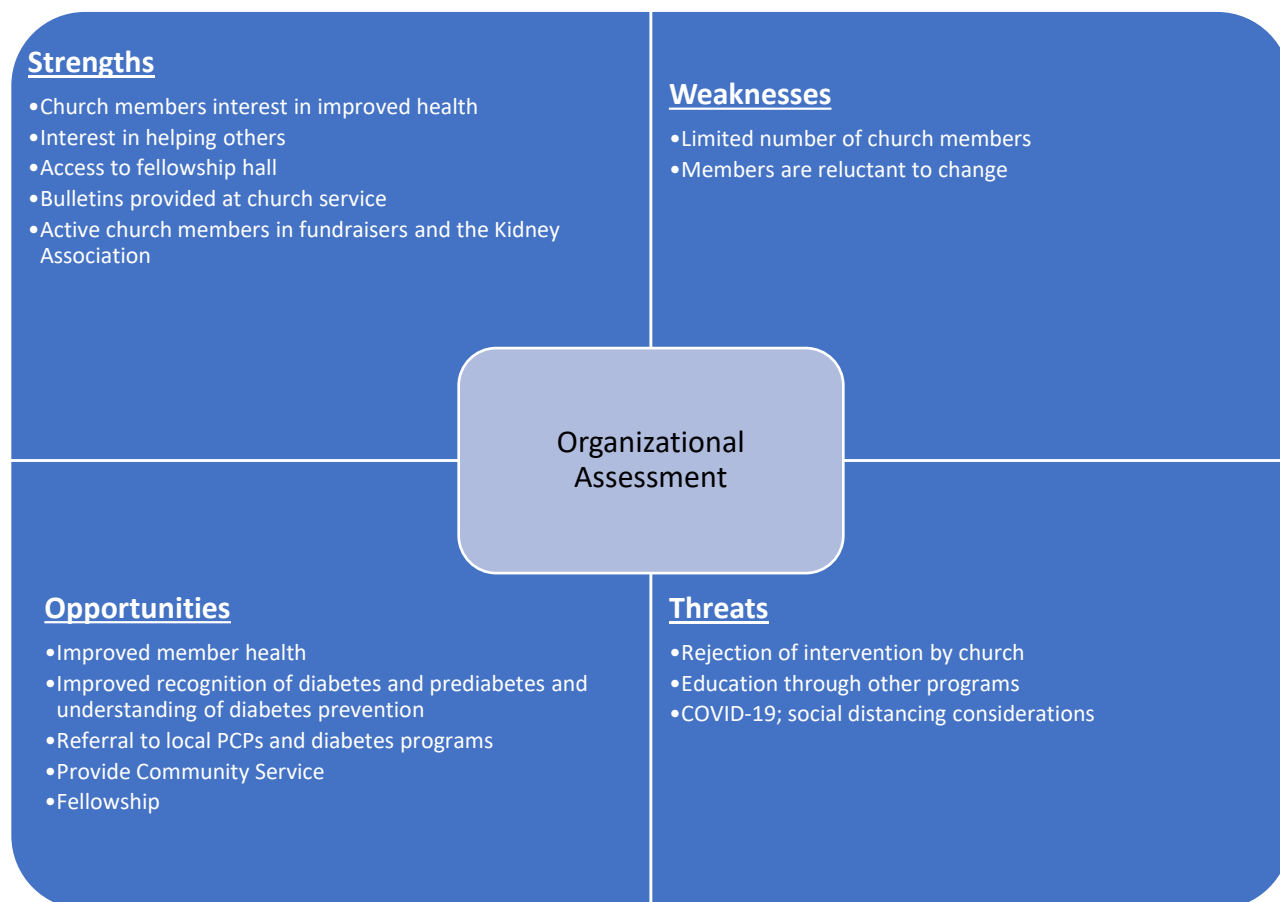
tool, scores can range from 0 to 11, with a score of 5 or higher indicating an increased risk for having prediabetes and a high risk for type 2 diabetes. Of the scores obtained, nine of the scores (56%) were 5 or higher and indicate increased risk.

Outcomes from the DNP project were overall positive and congruent with similar studies found during the literature review which indicated that rural communities could achieve health-related benefits through faith-based education. Five of the nine items on the post-test succeeded in achieving statistically positive significant outcomes, and three other items were found clinically significant. The items that most directly related to the DNP project outcomes; item #1 (Type 2 diabetes is a preventable disease), #6 (I understand my own risk factors for developing diabetes), and #8 (I know the resources / classes that are available to me about diabetes) all showed very high levels of statistical and clinical significance, suggesting that the educational intervention successfully achieved all three main objectives.

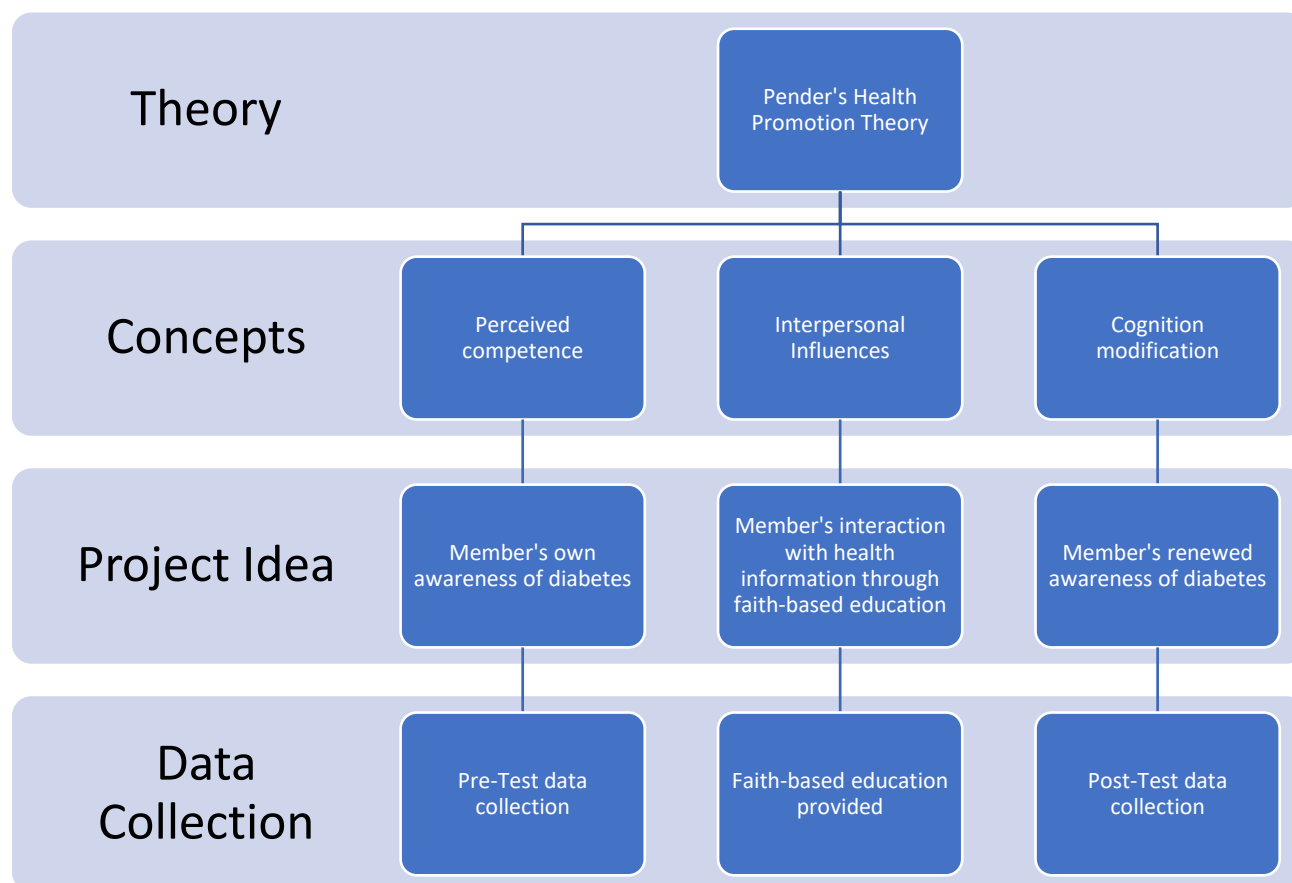
There were limitations to the DNP project, with the most profound being the small sample size of 21 participants. This intervention may not allow for generalization of the educational event due to the small sample size as well as the rural population. However, the impact on this small rural faith community was positive. Due to item five (Being overweight is the only risk factor to developing diabetes) having negative results, future evaluations would need to include adjustments to the wording of this item as well as clarification during the educational portion of the event. This event only collected short-term impact data and lacked an element of long-term data collection. Implications for the future may include follow up with the participants to find out if any participants made lifestyle changes, joined a diabetes prevention program, asked for their HgbA1C to be monitored or followed up with a primary care provider after attending the educational event.

The findings of this DNP project suggest that the rural population can increase knowledge of diabetes awareness through faith-based education. To conduct the educational event was feasible and current participants were in agreeance for similar events in the future. Discussions going forward should include ways to increase participation, clarification of specific education details, and other health-specific needs within the rural community.

Appendix A:

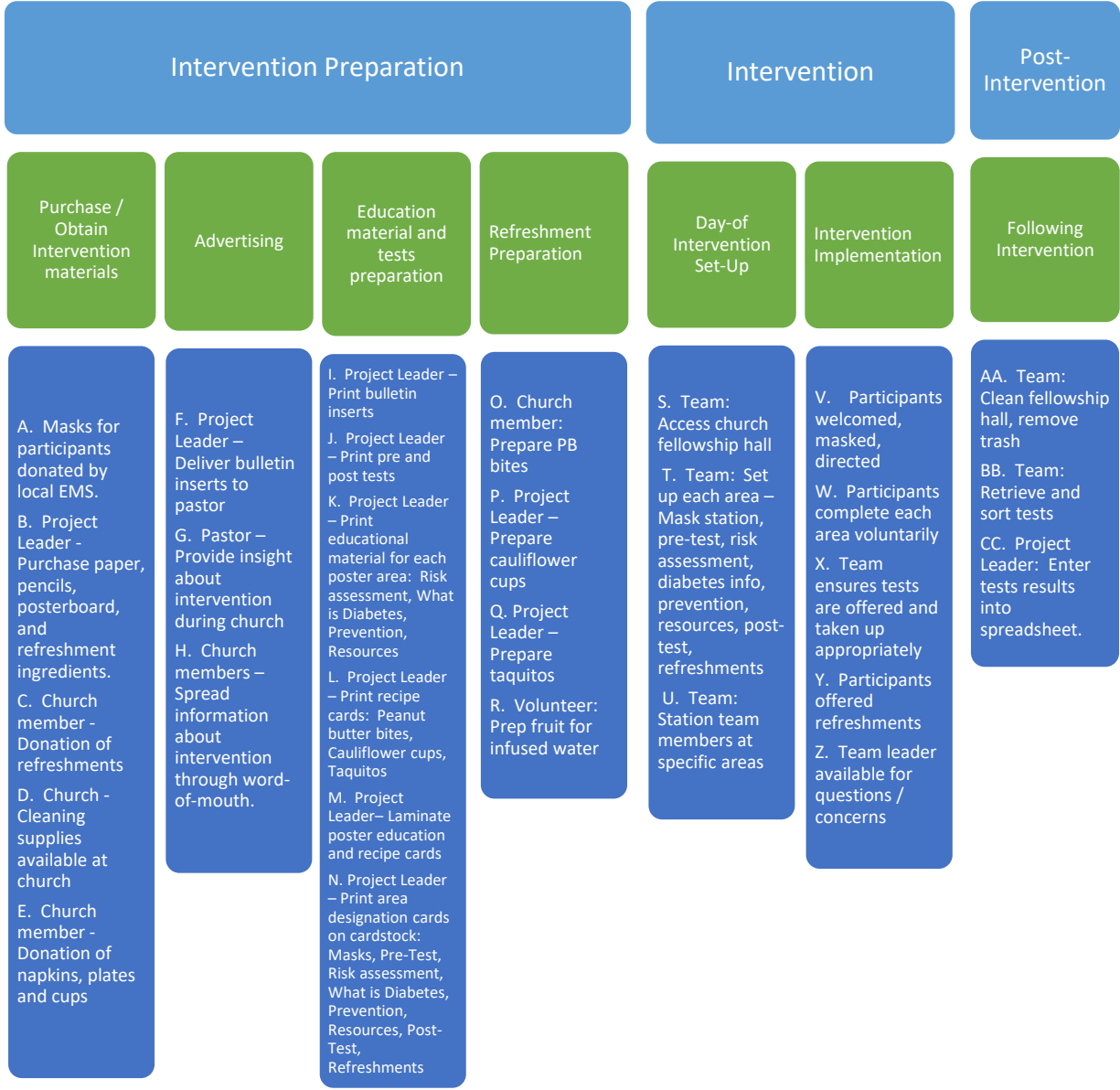


Appendix B:



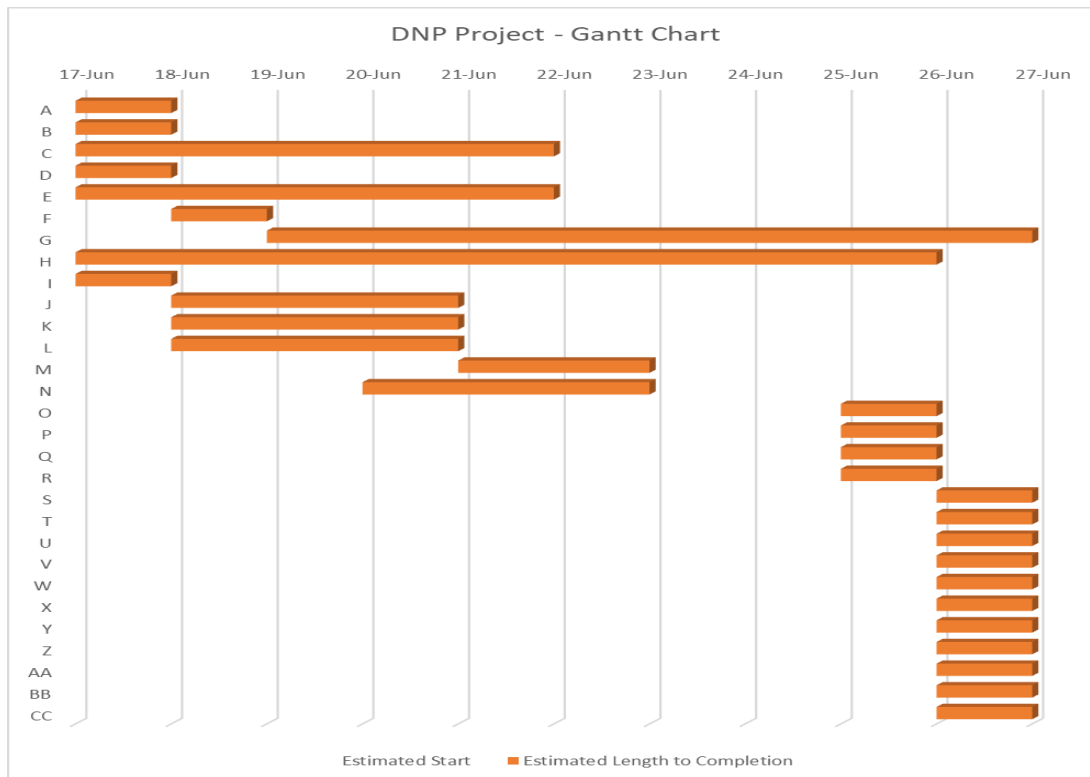
Appendix C: Work Breakdown Structure

Faith-Based Approach: Reaching the Rural Population to Increase Diabetes Awareness



Appendix D:

Task	Estimated Start	Estimated Length to Completion	Sequential or Parallel	Dependent Upon
A	17-Jun	1	SEQUENTIAL	NONE
B	17-Jun	1	SEQUENTIAL	NONE
C	17-Jun	5	PARALLEL	NONE
D	17-Jun	1	PARALLEL	NONE
E	17-Jun	5	PARALLEL	NONE
F	18-Jun	1	SEQUENTIAL	I
G	19-Jun	9	PARALLEL	NONE
H	17-Jun	9	PARALLEL	NONE
I	17-Jun	1	SEQUENTIAL	B
J	18-Jun	3	PARALLEL	B
K	18-Jun	3	PARALLEL	B
L	18-Jun	3	PARALLEL	B
M	21-Jun	2	SEQUENTIAL	B, K, L
N	20-Jun	3	PARALLEL	B
O	25-Jun	1	PARALLEL	C
P	25-Jun	1	PARALLEL	B
Q	25-Jun	1	PARALLEL	B
R	25-Jun	1	PARALLEL	C
S	26-Jun	1	SEQUENTIAL	NONE
T	26-Jun	1	SEQUENTIAL	S
U	26-Jun	1	SEQUENTIAL	S, T
V	26-Jun	1	PARALLEL	S, T, U
W	26-Jun	1	PARALLEL	S, T, U, V
X	26-Jun	1	PARALLEL	S, T, U, V, W
Y	26-Jun	1	PARALLEL	S, T, U, V, W
Z	26-Jun	1	PARALLEL	NONE
AA	26-Jun	1	SEQUENTIAL	D
BB	26-Jun	1	SEQUENTIAL	X
CC	26-Jun	1	SEQUENTIAL	BB



Appendix E:

Budget for DNP Project Regina Ledford			EXPENSES		
TOTAL EXPENSES			Estimated	Actual	
			\$1,905.74	\$0.00	
Direct Materials	Estimated	Actual	Indirect materials	Estimated	Actual
Paper	\$24.98		Printer	\$400.00	
Ink	\$58.94		Computer	\$500.00	
Pencils	\$20.00		Cell Phone	\$50.00	
Poster Board	\$32.76				
Refreshments	\$101.00		Total	\$950.00	\$0.00
Total	\$237.68	\$0.00	Church Overhead	Estimated	Actual
			Pastor	\$500.00	
Travel	Estimated	Actual	Fellowship Hall	\$200.00	
Mileage	\$18.06				
Total	\$18.06	\$0.00	Total	\$700.00	\$0.00

Appendix F:

Logic Model - Faith Based Education						
				Outcomes		
Inputs	Constraints	Activities	Outputs	Short Term	Long Term	Impact
<ul style="list-style-type: none"> •DNP Project Leader •DNP Project Chair •Church pastor •Pastor's wife •Church members •Computer •Printer •Supplies •Funding •Church building •Individual's time •Church service time 	<ul style="list-style-type: none"> •Time frame •Budget •Church space •Service time 	<ul style="list-style-type: none"> •Development of tests and education •Pre-test completion •Post-test completion •Education material provided •Service discussion about project 	<ul style="list-style-type: none"> •Number of participants •Baseline test scores •Post-education test scores 	<p>Increased scores from pre-test to post-test after education intervention, therefore increased diabetes awareness among church members</p>	<p>Increased motivation and self-confidence of church members to prevent diabetes</p>	<p>Increasing the rural populations access to health education</p>

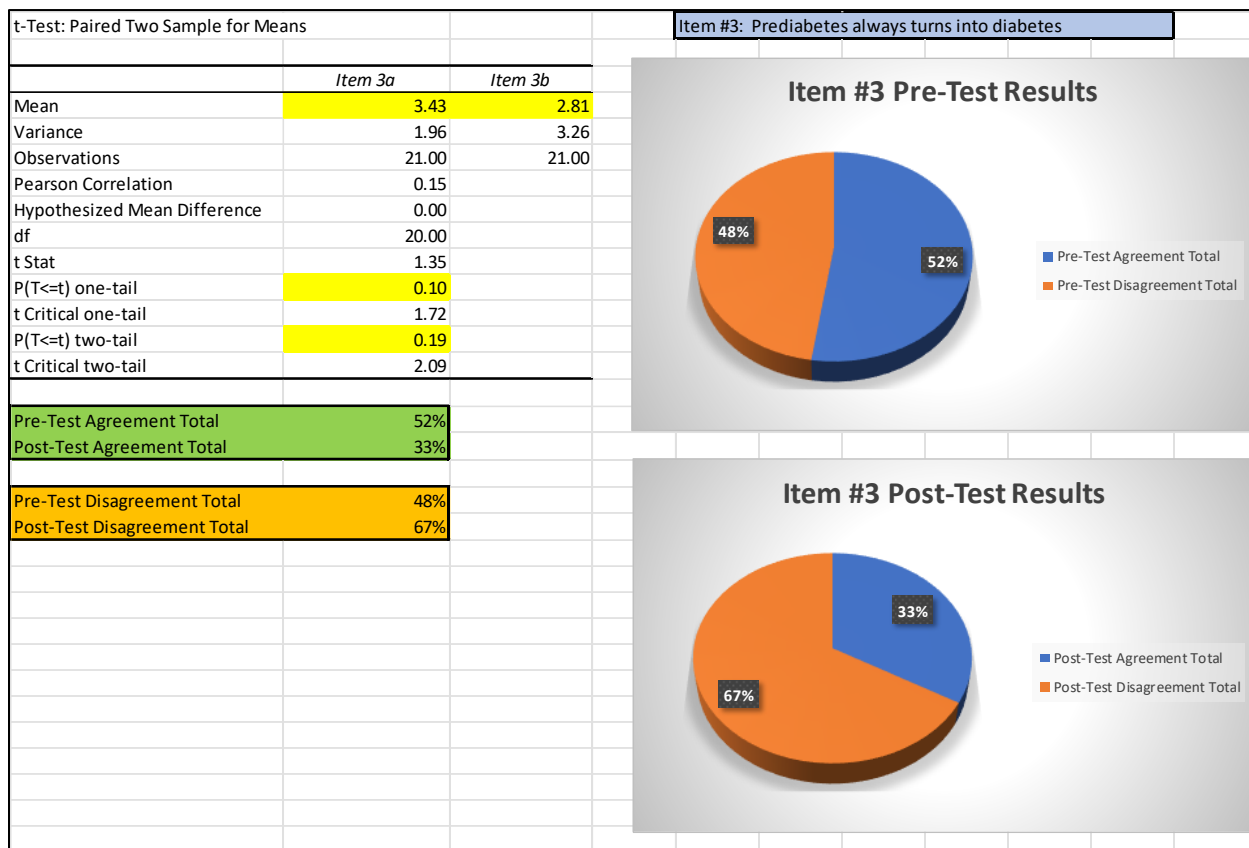
Appendix G:

Diabetes Educational Event						Pre-Test
<p>The following statements measure your knowledge of diabetes. Indicate how strongly you agree or disagree with each of the following statements by circling an option ranging from STRONGLY DISAGREE to STRONGLY AGREE.</p>						
Question						
1. Type 2 diabetes is a preventable disease.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
2. I can make lifestyle changes to prevent developing diabetes.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
3. Prediabetes always turns into diabetes.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
4. After age 43, you are less likely to develop diabetes.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
5. Being overweight is the only risk factor to developing diabetes.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
6. I understand my own risk factors for developing diabetes.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
7. Cleveland County offers education / resources about diabetes.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
8. I know the resources / classes that are available to me about diabetes.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
9. I am interested in joining a class to decrease my risk of diabetes.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree

Appendix H:

Diabetes Educational Event						Post-Test
<p>The following statements measure your knowledge of diabetes. Indicate how strongly you agree or disagree with each of the following statements by circling an option ranging from STRONGLY DISAGREE to STRONGLY AGREE.</p>						
Question						
1. Type 2 diabetes is a preventable disease.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
2. I can make lifestyle changes to prevent developing diabetes.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
3. Prediabetes always turns into diabetes.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
4. After age 45, you are less likely to develop diabetes.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
5. Being overweight is the only risk factor to developing diabetes.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
6. I understand my own risk factors for developing diabetes.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
7. Cleveland County offers education / resources about diabetes.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
8. I know the resources / classes that are available to me about diabetes.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
9. I am interested in joining a class to decrease my risk of diabetes.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
10. I would like more educational events like this one.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
11. My diabetes risk score is: _____						

Appendix K:



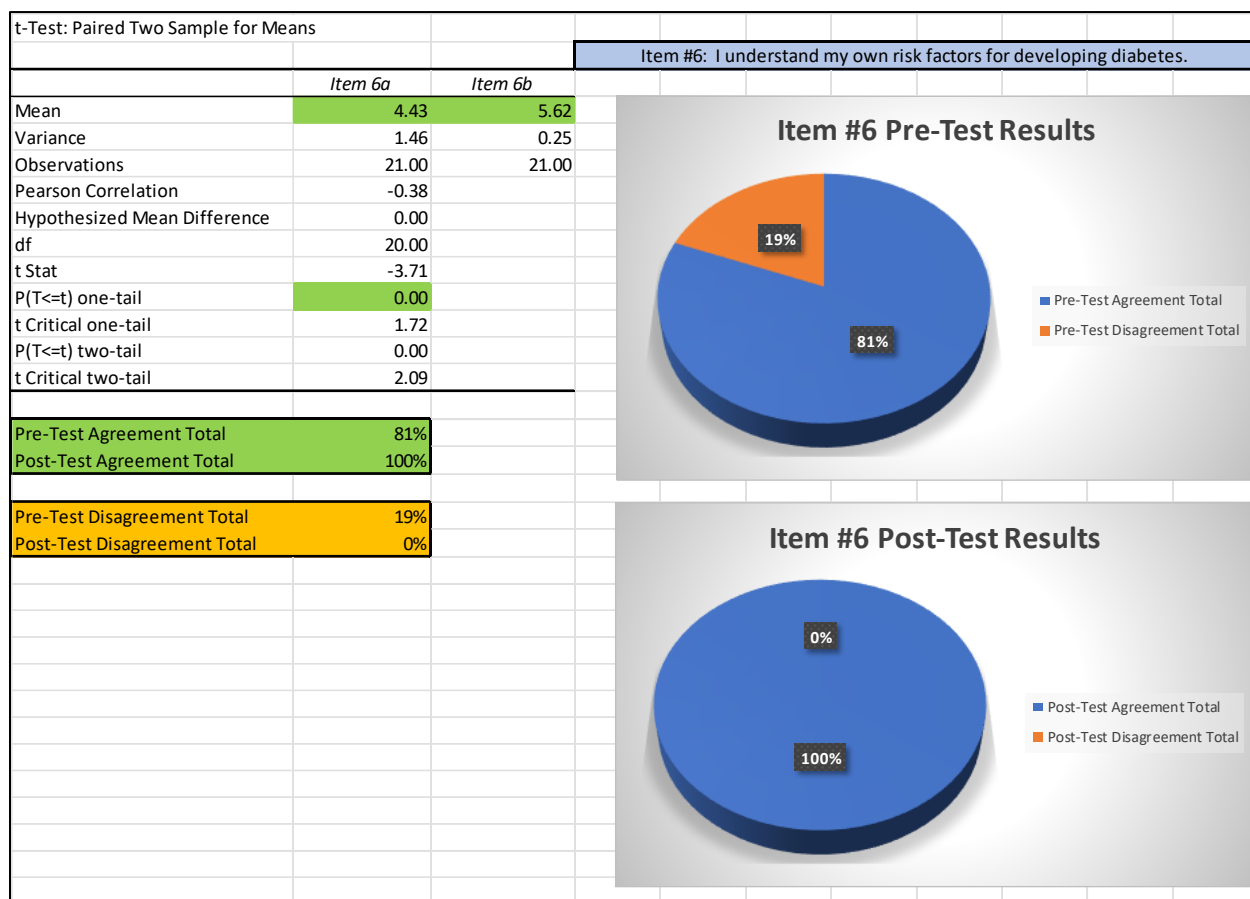
Appendix L:

t-Test: Paired Two Sample for Means			Item #4: After age 45, you are less likely to develop diabetes.
	Item 4a	Item 4b	
Mean	2.14	1.95	<h3>Item #4 Pre-Test Results</h3> <p>■ Pre-Test Agreement Total ■ Pre-Test Disagreement Total</p>
Variance	1.33	1.25	
Observations	21.00	21.00	
Pearson Correlation	0.32		
Hypothesized Mean Difference	0.00		
df	20.00		
t Stat	0.66		
P(T<=t) one-tail	0.26		
t Critical one-tail	1.72		
P(T<=t) two-tail	0.52		
t Critical two-tail	2.09		
Pre-Test Agreement Total	19%		
Post-Test Agreement Total	5%		
Pre-Test Disagreement Total	81%		
Post-Test Disagreement Total	95%		

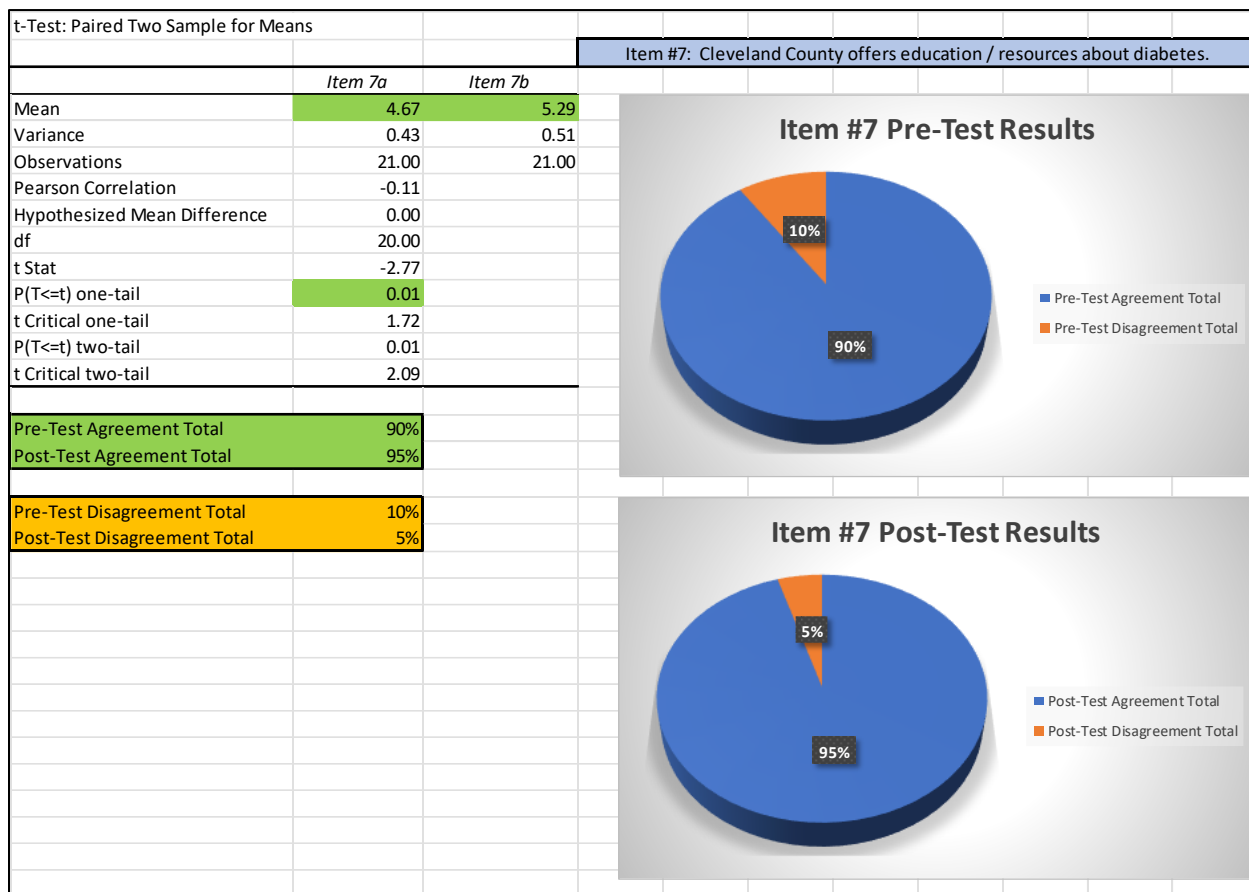
Appendix M:

t-Test: Paired Two Sample for Means			Item #5: Being overweight is the only risk factor to developing diabetes.	
	Item 5a	Item 5b		
Mean	1.76	1.76	<h3>Item #5 Pre-Test Results</h3> <p>0% 100%</p> <ul style="list-style-type: none"> Pre-Test Agreement Total Pre-Test Disagreement Total 	
Variance	0.29	1.19		
Observations	21.00	21.00		
Pearson Correlation	-0.27			
Hypothesized Mean Difference	0.00			
df	20.00			
t Stat	0.00			
P(T<=t) one-tail	0.50			
t Critical one-tail	1.72			
P(T<=t) two-tail	1.00			
t Critical two-tail	2.09			
Pre-Test Agreement Total	0%			<h3>Item #5 Post-Test Results</h3> <p>10% 90%</p> <ul style="list-style-type: none"> Post-Test Agreement Total Post-Test Disagreement Total
Post-Test Agreement Total	10%			
Pre-Test Disagreement Total	100%			
Post-Test Disagreement Total	90%			

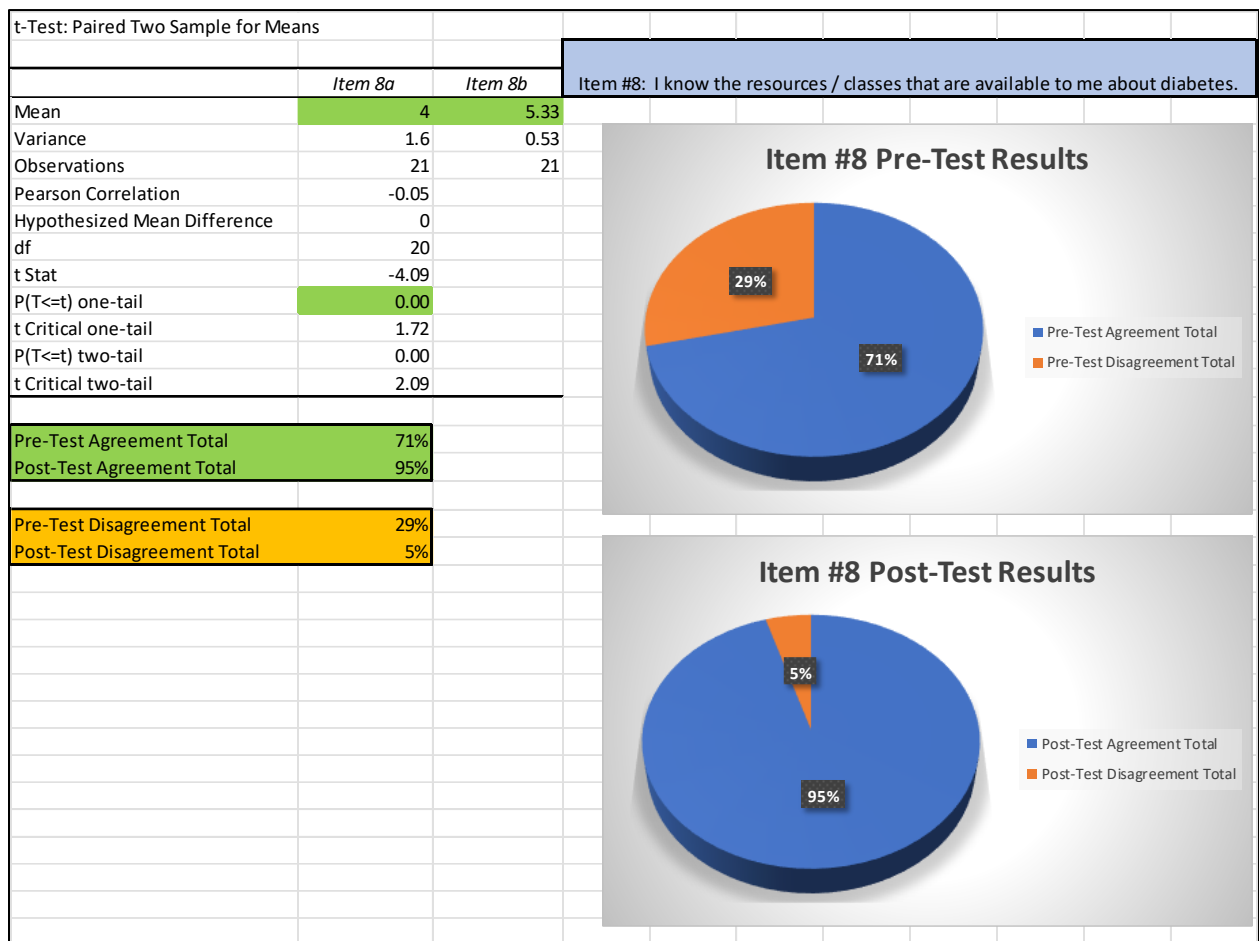
Appendix N:



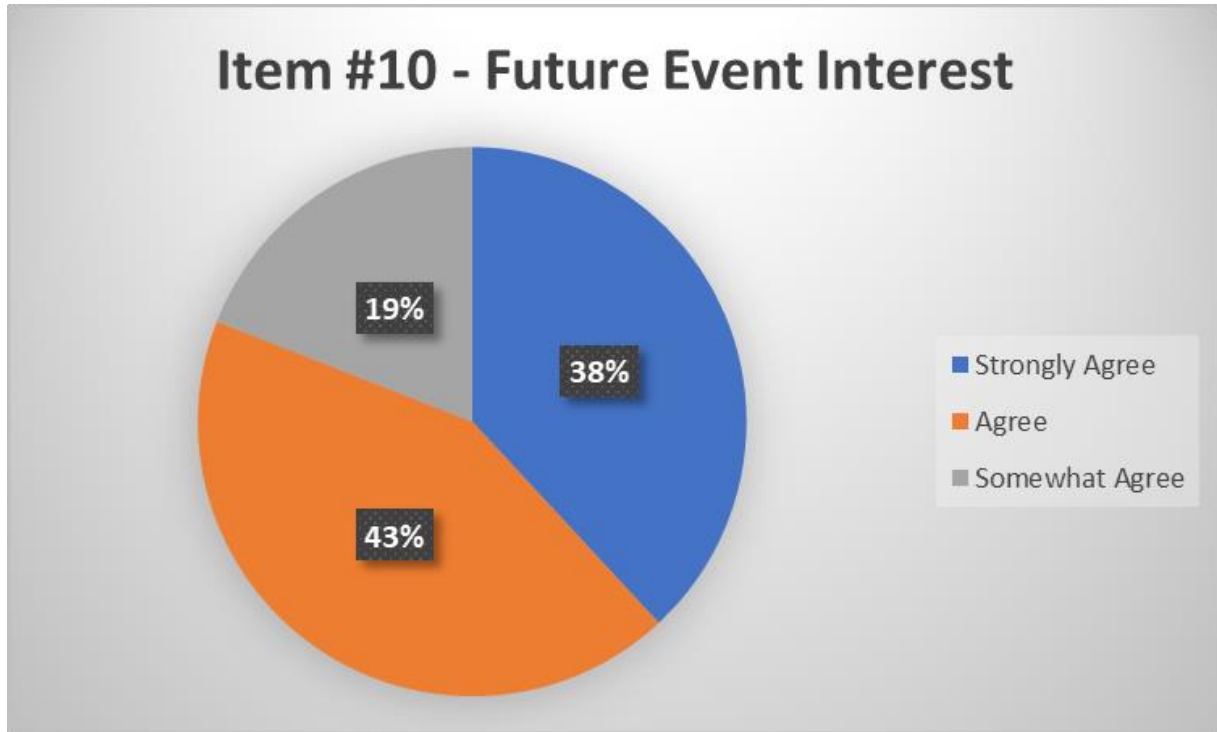
Appendix O:



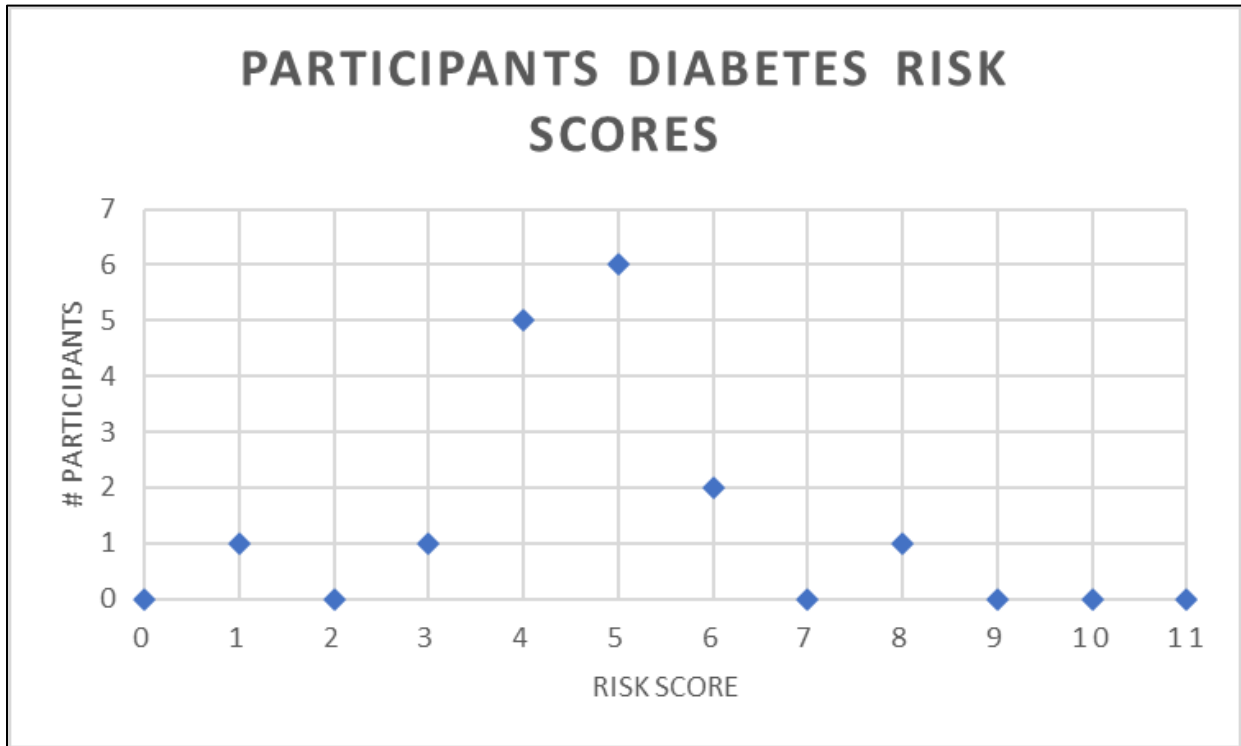
Appendix P:



Appendix R:



Appendix S:



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